



SANCTIONED INTERPRETATION #7

of the e-Stewards® Standard for Responsible Recycling and Reuse of Electronic Equipment: Version 2.0©

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Introduction

Purpose: The e-Stewards Sanctioned Interpretations exist to provide a single focal point for all questions and changes related to the e-Stewards Standard between formal revisions of the standard.

Use in audits: Interpretations published in final Sanctioned Interpretations shall be referenced for any audits of an e-Stewards Organization against the e-Stewards Standard, and are effective as of date of publication unless otherwise stated. In other words, all final Sanctioned Interpretations are requirements for certification, effective the date of final publication.

Format of this Sanctioned Interpretation: The most recent updates to these Sanctioned Interpretations appear in bold font in this document. As in the e-Stewards Standard, *italics* represents ISO 14001 language. Some entries below provide only clarifications of the current Version 2.0 text, in the form of questions and answers (Q and A); these are marked as a [CLARIFICATION]. Other entries provide new requirements in the standard; these are marked as [NEW STANDARDS LANGUAGE]. It is important to recognize that Appendices A and B (at the end of this document) also may contain changes in requirements for e-Stewards recyclers.

Access: This system of formal clarifications and corrections is intended primarily for accreditation bodies, certification bodies, and e-Stewards Organizations that are using the e-Stewards Standard, but questions from all sources will be considered and responded to as appropriate. Send inquiries to info@e-stewards.org.

The most recent version of the Sanctioned Interpretation (SI) can be found in the certification section at www.e-Stewards.org.

NOTE: Footnote numbers in this SI do not correspond to the same footnote numbering system in the standard.



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1 ENVIRONMENTAL MANAGEMENT SYSTEMS - REQUIREMENTS WITH GUIDANCE FOR USE

1.1.4 Eligibility for certification [ADDITIONAL STANDARDS LANGUAGE]

Certification is not available to Prison Operations, as defined under Terms and Definitions. If operations use prison labor but believe they meet the criteria exempting them from the Prison Operations definition, the Organization shall provide objective evidence of such conformity to the e-Stewards program administrator and receive written approval from the program administrator to seek e-Stewards certification.

2 NORMATIVE REFERENCES

[ADDITIONAL STANDARDS LANGUAGE]

Current Sanctioned Interpretations document, found at: <http://e-stewards.org/learn-more/for-recyclers/access-the-standard/sanctioned-interpretations/>

3 TERMS AND DEFINITIONS [formerly GLOSSARY]

3.28 A Direct Reuse [NEW STANDARDS LANGUAGE]

The continued use, by other than previous user, of Electronic Equipment and components which have been tested and determined to be Fully Functional without the necessity of (further) Repair/Refurbishment, provided that such continued use is for the originally intended, Repurposed, or upgraded purpose of Electronic Equipment and their components.

3.43 Immediate Downstream Processor [NEW STANDARDS LANGUAGE]

A next-tier facility or operation to which the e-Stewards Organization transfers (with or without Intermediaries involved) Hazardous Electronic Equipment, Hazardous e-Waste, or Problematic Components and Materials in any form. It also includes a next-tier facility or operation to which the Organization outsources activities it is responsible for under this Standard, e.g. reuse (4.4.6.2) and data security (4.4.6.3) requirements. An Immediate Downstream Processor can include End Refurbishers, Downstream Processors, End Processors, and Final Disposal facilities, but does not include Intermediaries such as Brokers.

3.50 A: Prison Operation [NEW STANDARDS LANGUAGE]

Facilities that Recycle/Process Electronic Equipment in which work on e-waste is performed by incarcerated workers, except in facilities where the e-Stewards program administrator agrees in writing that all of the following criteria are met:

- a) Not government subsidized: The operation does not receive a net government subsidy, i.e. the operation shall not operate at lesser costs than would be incurred by operations using non-incarcerated workers after all costs, e.g. wages, housing, food, insurance, closure plans, are considered. Regardless of the net costs, incarcerated workers must also receive compensation equivalent to at least the local minimum hourly wage for non-incarcerated workers in the same jurisdiction;



- b) Heightened data security controls: An effective system of heightened and continuous protection of Customer Data exists in view of the higher risk of private data being compromised in a prison environment; and
- c) Occupational health and safety protections: Incarcerated workers are provided with equal or greater rights (from both internal and external authorities) compared to non-incarcerated workers, including the right to be made aware of and redress risks of occupational harm.

3.51A: Qualified Auditor [NEW STANDARDS LANGUAGE]

A qualified auditor with the competence to perform a second or third party downstream due diligence audit or internal audit shall be generally qualified on the basis of knowledge of risk assessments and e-Stewards requirements for downstream processors, as applicable, and shall be free from conflicts of interest¹. In addition, their qualifications shall include an effective combination of:

- ▶ Education (minimum should be successful completion of secondary [high school] education),
- ▶ Relevant work (industry) experience (should include a minimum of two years of work experience in the electronics recycling industry in any capacity),
- ▶ Training as an auditor, with a relevant and preferably accredited auditor training program,
- ▶ Experience as an auditor, which should include at least one witnessed downstream due diligence or management system audit, as appropriate, under the observation of another competent auditor, and/or
- ▶ Detailed knowledge of environment, health and safety; management systems; and/or regulatory compliance, as appropriate.

The qualifications put forth for any such auditor must be documented and maintained by the auditor's employer.

4 ENVIRONMENTAL MANAGEMENT SYSTEM REQUIREMENTS

4.2 *Environmental Policy*

4.2 b) 3. [NEW STANDARDS LANGUAGE. REPLACES ORIGINAL 4.2 b) 3]

Prohibition of Prison Operations, as defined in this standard, throughout the Recycling Chain

4.3 *Planning*

4.3.1 *Environmental and Stewardship Aspects*

4.3.1 c) Conduct a risk assessment [NEW STANDARDS LANGUAGE. THIS PARAGRAPH REPLACES ORIGINAL PARAGRAPH ONE IN 4.3.1 c)]

At least every three years, conduct and document a risk assessment of the Organization's Environmental and Stewardship Aspects, using qualified personnel. The risk assessment shall include a job risk and hazard analysis of all functional areas, and may be conducted using a multi-disciplinary

¹ e.g. shall not audit their own work



team. Additional risk assessments shall be conducted on specific operations or areas prior to and following any significant changes.

4.3.1 c) Conduct a risk assessment [CLARIFICATION]

Q: Is a separate risk assessment required to be conducted at each facility, if an Organization is multi-sited?

A: Yes. The requirement to perform a risk assessment applies to each facility. While there may be some aspects of operations which are duplicated in multiple sites owned and managed by the same company (and can provide input into another similar facility's risk assessment), there will always be differences between facilities, including differences in waste streams processed, site-specific risks (e.g. storm water runoff), employee training and involvement in the risk assessment, performance of effective housekeeping practices, etc.

4.3.3 Objectives, targets and programme(s) [CLARIFICATION]

Q: Is the Organization required to establish data security objectives?

A: If an Organization has identified the potential impact of data security as a significant Environmental and Stewardship Aspect within its operation, then it is a requirement to establish associated objective(s), target(s) and program(s) for these data security aspects. If the Organization does not identify data security aspects as significant, then no data security objectives and targets are required to be established.

4.4 Implementation and operation

4.4.2 Competence, training and awareness [CLARIFICATION]

Q: What are the competency requirements for persons conducting internal audits and downstream Due Diligence on behalf of the Organization?

A: The person(s) conducting audits shall be competent for the task based upon an appropriate and demonstrated combination of education, work experience, auditor training, e-Stewards Standard training, and audit experience.

4.4.3 Communication

4.4.3.1 Participation and Communication

4.4.3.1 b) [NEW STANDARDS LANGUAGE. THIS PARAGRAPH REPLACES ORIGINAL LANGUAGE FOR LETTER b)]

b) For Customers

If requested by customers, including upstream e-Stewards Organizations, the Organization shall provide, or allow review of, verifiable records of:



1. The Organization's Hazardous e-Waste shipped to and received by facilities approved by the Organization for Recycling and/or Final Disposal, through Final Disposition, including Hazardous e-Waste generated by Repair/Refurbishment operations. Records shall include:
 - ▶ Location of each Downstream Processor through Final Disposition (including country), and current contact information for each facility;
 - ▶ Weights/quantities, contents, and dates of each shipment to Immediate Downstream Processors (IDPs); and
 - ▶ Sampling of shipment records to Downstream Processors beyond IDPs, to Final Disposition of Hazardous e-Waste;
2. Equipment and components going for reuse, up to the point of completing requirements for reuse in conformity with 4.4.6.2. Records shall include dated sales orders or invoices numbers, but do not need to include names of buyers; and
3. Competent Authority notifications and consent, or approvals, where applicable.

Should the customer require *more extensive* detailed documentation, provision of such information may be contractually negotiated and controlled.

4.4.6 Operational control

4.4.6.2 Reuse and Refurbishment of Electronic Equipment

NOTE: New battery requirements are effective July 1st, 2015

a) Test Electronic Equipment and ensure Full Functionality

The Organization shall determine that Electronic Equipment, including components, which contain or consist of HEEs and/or PCMs are Fully Functional, with exceptions defined in Table 1 below, by testing each item to determine its condition, Repairing/Refurbishing as needed, and ensuring they are Fully Functional² prior to going for Direct Reuse.

In addition, the Organization shall:

- ±. [DELETE ORIGINAL COMPUTING EQUIPMENT BATTERY REQUIREMENTS IN V2 STANDARD, AND REPLACE WITH NEW REQUIREMENTS IN TABLE 1, ROW 4 BELOW]

² For batteries other than those explicitly addressed in this section 4.4.6.2 (e.g. batteries from tablets and non-lithium-ion batteries), the Organization is encouraged to define 'Fully Functional' using the minimum capacity defined in the Basel Convention's Mobile Phone Partnership Initiative guideline on refurbishment, which recommends that a used battery going into reuse should be able to hold a charge that is at least 80% of its original capacity.



2. 1. [NEW NUMBER] Determine the state of health of each mobile phone battery destined for reuse³, ensuring that it is capable of holding a charge of at least 80%⁴ of its original rated capacity⁵. This should be accomplished by the following:
 - ▶ Recharge each battery (at least 30% recharged) and then perform a ‘quick test’ (e.g. with a quick sort analyzer) if a reliable quick test⁶ is available for battery type, or
 - ▶ Fully charge and discharge the battery to measure its current capacity,
3. 2. [NEW NUMBER] Determine that photo voltaic modules destined for reuse are capable of producing power output that is at least 50% of original power output, and
4. 3. [NEW NUMBER] Test CRT devices that are destined for remanufacturing⁷ ...

(See next page)

³ Unless mobile phone is Repurposed to a use that does not rely on the battery.

⁴ This parameter was defined by participants in the United Nation’s Mobile Phone Partnership Initiative (MPPI), including industry participants; <http://www.basel.int/industry/mppi.html>

⁵ Battery manufacturers typically state the rated capacity of new batteries on the battery labels, in terms of milliamp hours (mAh or mAmps).

⁶ If using a pass/fail analyzer, it must be set at a minimum threshold of 80% for all batteries indicated to “pass” the quick test.

⁷ e.g. removing a cathode ray tube (CRT) from a used device and building a new device/product incorporating the old tube.



Table 1: Electronic Equipment that does not have to be Full Functional (4.4.6.2 a), if it meets these requirements	
Type of Electronic Equipment exempt from Full Functionality requirements (4.4.6.2 a)	Requirements for this type of Electronic Equipment, prior to going for reuse
<p>...4. Rechargeable lithium-ion batteries that are replaceable and are used in laptops and notebook computers</p>	<p>Perform all of the activities below, whether batteries are in the device they power or separate, and only send batteries into reuse if they meet all of the following requirements:</p> <ul style="list-style-type: none"> ▶ Visually inspect each laptop or notebook for evidence of a bulging battery or bulging housing due to an internal bulging battery, and only allow non-bulging or otherwise undamaged batteries and their devices to go to reuse; and ▶ Fully charge each battery, and then unplug the device and test each battery by using either the free bootable testing software provided by the e-Stewards program administrator⁸ or any software or testing device that achieves the same outcomes⁹, as follows: <ul style="list-style-type: none"> ▶ Determine and record the original design capacity in milliamp hours (mAh) that is recorded on the smart chip for each battery; ▶ Determine and record the last known full capacity¹⁰ in mAh of each battery, e.g. by reading the smart chip; ▶ Express and record the difference between the two numbers as a percentage of original capacity; and ▶ Perform a 10-minute load test using the Prime95 program at the -t option setting¹¹, or an equal or greater load. Batteries that run out of power during the 10-minute load test shall not be made available for reuse. Also, batteries that deviate more than 25% in any two readings during the test cannot be made available for reuse. <p>NOTE: If a battery fails any of the requirements above, it shall not be sent into reuse and shall be managed as an HEW. See labeling requirements under 4.4.6.2 c) for information which must accompany all sales/donations and shipments of these batteries that are acceptable for reuse.</p>

⁸ Available at <http://e-stewards.org/learn-more/for-recyclers/online-tools/battery-testing/>

⁹ Software specifications can be found at the link above, in footnote 7.

¹⁰ i.e. the reported capacity of the battery at the time of the test.

¹¹ This program and its specifications are available at (www.merseme.org); Version v28.5 or later shall be used, with the - t setting. An alternate test can be used if it meets the equivalent specifications of Prime95 with the - t setting.



<p>5. Untested Electronic Equipment which is sold or donated to in-country employees of the Organization</p>	<p>The Organization (but not another entity on behalf of the Organization) may sell or donate untested Electronic Equipment (EE) on-site to its own domestic employees, if the Organization:</p> <ul style="list-style-type: none"> ▶ First completes a sorting and evaluation of each item of EE, and only offers items which appear to be in working condition and do not have damage which could result in unsafe operation; ▶ Clearly identifies to the employee that the untested equipment and components are untested; ▶ Requires that the EE is for the employee's use only, and is not sold or donated onward to another individual or company; ▶ Requires the employees to return equipment/components to the Organization if not functional, and the Organization accepts it back at no cost; ▶ Sells/donates no more than 2 items of each type of equipment or component (e.g. laptops, blenders, printers, cartridges) and no more than 15 items per sale/donation to any employee; ▶ Offers no more than 2 such sales/donation events per month; and ▶ Maintains records of the above transactions and agreements indicating conformity to these requirements.
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c) Label or list identifying records for each item of Electronic Equipment

The Organization shall provide and maintain identifying information for each item of Electronic Equipment (including components) destined for reuse, except for integrated circuits and random access memory (RAM). The identifying information shall be conveyed in manner that ensures that future buyers and/or donees have access to this information, regardless of whether or not the information has been requested. The information shall be conveyed for each lot or shipment sold or transferred, in a manner that is accessible to both officials (e.g. customs officers) and customers without the need for unpacking, using any of the following methods: a label attached to each item; an accompanying list of items (e.g. packing slip); and/or an active URL/web address with immediate access to itemized identifying information for each shipment. Identifying information shall include...

...6.

- ▶ Results of tests performed,
- ▶ An accurate representation of the condition of the device or component (including cosmetic condition), including for batteries not stipulated in a) 1 [mobile phone batteries] and Table 1, Row 4 [some computing device batteries],
- ▶ A description of missing components (if applicable),
- ▶ Confirmation that all equipment and/or components are Fully Functional (except for exempted equipment), and
- ▶ A clear representation that it is a used device or component (unless it is new and still in original packaging),

7. [REPLACES ORIGINAL #7 IN VERSION 2 STANDARD] Information about each rechargeable battery that meets requirements in Table 1, Row 4, as follows:



- ▶ Original capacity: The original rated capacity of the battery (when it was new), in milliamp hours (mAh);
- ▶ Capacity at time of test: The reading of the last known full capacity in mAh of the fully charged battery at the time of the test; and
- ▶ Percentage of original capacity: The remaining capacity of the battery expressed as a percentage of the original capacity (derived from the above two readings).

These results shall be made available by the Organization upon request, for the 5 year record-retention period.

f) Take back of exported Hazardous Electronic Equipment

The Organization shall always accept back, free of charge, exported equipment and/or components which originated from the Organization's facility or Control if they were misrepresented to the customer, and/or if they are comprised of or contain Hazardous Electronic Equipment but were subsequently determined to be non-functional, including those broken during shipment or significantly different than described.

4.4.6.5 Accountability for downstream recycling

(See additional changes for this section below under APPENDIX A)

[NEW STANDARDS LANGUAGE. THESE PARAGRAPHS REPLACE ORIGINAL LANGUAGE FOR c) AND d)]

- c) Conduct ongoing Due Diligence on all Immediate Downstream Processors (IDPs) and ensure responsible management of HEWs by IDPs

Ensure HEWs are managed only in approved IDP facilities, with or without Intermediaries involved in transfers to these facilities, in accordance with requirements in Appendix A.4.4.6.5 c) and the following:

1. Evaluate, perform audits of, and approve each IDP: Prior to initial shipment and at least Annually thereafter, evaluate (e.g. via an administrative audit) and approve each IDP used for Recycling (including Repair/Refurbishment) and/or Final Disposal of the Organization's HEWs in conformity with requirements in this section 4.4.6.5 c). Prior to initial shipment and at least every 2 years thereafter perform on-site audits of each IDP using Qualified Auditors, unless IDP has a current and valid e-Stewards certification, or unless the IDP is a permitted smelter located in an OECD country, in which case no on-site audits are required.

To domestic End Refurbishers only (but not to Brokers), the Organization may initially send untested or non-working Electronic Equipment (EE), for the purpose of repair/refurbishment, without having completed initial on-site audits, if the Organization meets all other requirements for IDPs in 4.4.6.5, and:

- ▶ First completes a thorough 'desk audit' of each End Refurbisher confirming their conformity to requirements in A.4.4.6.5 c) 1 i. through vii.;



- ▶ First sanitizes all Customer Data from memory devices and equipment according to requirements in 4.4.6.3;
- ▶ Completes an on-site audit for each End Refurbisher within 6 months after the initial transfer of EE to the End Refurbisher;
- ▶ Ensures that revenue generated from such EE is limited to a maximum of 30% of the Organization's Annual revenues from total EE destined for reuse;
- ▶ Demonstrates with objective evidence that such End Refurbishers are domestic only; and
- ▶ Ensures that all scrap, e-Waste, and residuals resulting from the End Refurbisher's operation(s) are managed according to the Standard.

...4. Ensure IDPs have an environmental, health, and safety management system:

Confirm that each Immediate Downstream Processor (except Final Disposal facilities and certified e-Stewards Organizations) managing the Organization's HEWs fully implements, Annually reviews, and updates as needed a documented management system for: identifying and complying with legal requirements; identifying and effectively responding to environmental, health, and safety impacts and risks; and continually evaluating and improving that system and their operations accordingly.

d) [NEW STANDARDS LANGUAGE]

Conduct ongoing Due Diligence to ensure responsible management of HEWs beyond IDPs, throughout the Recycling Chain, except when Downstream Processors are certified e-Stewards Organizations

At least Annually, and whenever changes in vendors and Brokers are made, evaluate and approve Downstream Processors and Final Disposal facilities beyond the IDPs, throughout the Recycling Chain, except when they are certified e-Stewards Organizations, for each of the Organization's HEWs and their HEW residuals, and conduct ongoing Due Diligence, in accordance with requirements in Appendix A.4.4.6.5 d), including...

4.4.6.6 Restrictions on Materials Recovery and Final Disposition operations

4.4.6.6 e) [REPLACES ORIGINAL PARAGRAPH e)]

When seeking to send an HEW into an alternative use (product or process), i.e. to destinations other than those listed in Table 3, the Organization shall first:

- ▶ Thoroughly analyze and document potential short & long term risks and negative impacts of the alternative use application on health & safety and the environment, including:
 - ▶ Perform appropriate literature review and document any existing concerns for managing an HEW in this way or similar ways,
 - ▶ Test the product or obtain test results for potential leaching or releasing of hazards over the short and long term, and obtain evidence that the product(s) made with the HEW does not exceed limits in the Toxics Characteristic Leaching Procedure (TCLP)(see definition for Hazardous Electronic Equipment) or equivalent, and



- ▶ If the product/process uses plastics that contain Halogenated Compounds, obtain evidence that demonstrates they do not leach or emit Halogenated Compounds, and
- ▶ Prior to implementation, provide written notification to the e-Stewards program administrator of each alternative use the Organization has determined is acceptable. Include a detailed description of each alternative use for HEWs, as well as objective evidence of conformance to requirements above¹².

4.4.6.6 f) [REPLACE LETTER f) WITH NEW LANGUAGE. NOTE: The term “last resort” in Table 3 is replaced with the term “conditionally allowable option” in Rows 5 - 8, and is deleted in Row 12.]

f) Restrict HEWs and PCMs to approved facilities according to the requirements in Table 3 below. For some HEWs and PCMs in Table 3, there are ‘preferred options’ and ‘conditionally allowable options’ listed. ‘Conditionally allowable options’ for downstream facilities for any particular HEW or PCM are only acceptable if ALL ‘preferred options’ for that material are determined and documented by the Organization to be not viable due to one or more of the following reasons:

- i. Access is denied to all available facilities considered ‘preferred options’ (see Table 3),
- ii. Legal or logistical barriers in transporting or exporting materials to all available ‘preferred options’ are insurmountable,
- iii. The costs, in total, of using the least costly ‘preferred option’ are more than twice the cost of using a ‘conditionally allowable option’, and/or
- iv. All available facilities in the ‘preferred option’ category do not satisfy the downstream accountability (4.4.6.5) requirements of the Standard.

If all available ‘preferred options’ are determined to be not viable, the Organization shall provide to their certification body auditor(s) evidence and written justification of their decision to use a ‘conditionally allowable option’. The Organization shall also send a copy of this evidence and justification to the e-Stewards program administrator prior to utilizing a ‘conditionally allowable option’ for management of applicable HEWs and/or PCMs.

Table 3 Restrictions on Materials Recovery & Final Disposition Operations for HEWs and PCMs (in addition to restrictions above)

[NOTE: The entire Table 3 is inserted below, and the term “last resort” in Table 3 is replaced with the term “conditionally allowable option” in Rows 5 - 8, and deleted in Row 12.]

Type of HEW or PCM:	These HEWs or PCMs shall:
1. Arsenic-containing equipment or components if defined as HEE	<ul style="list-style-type: none"> ▶ Not be openly burned or Processed in operations which release arsenic or its compounds to the biosphere; and ▶ Be sent to hazardous waste disposal or Processed by integrated smelters or other types of facilities capable of effectively recovering arsenic and arsenic compounds.

¹² If new technologies are proprietary, the program administrator will sign a non-disclosure agreement in order to review pertinent information.



<p>2. Batteries – Sorted <u>alkaline</u> & non-hazardous batteries¹³</p>	<ul style="list-style-type: none"> ▶ Be recycled in battery recycling facilities or steel mills that recover the metal value, even if disposal is allowed by law, or ▶ If no recycling markets or options are available, including legal exports, these batteries may be disposed of in legally permitted solid waste landfills.
<p>3. Batteries – if defined as HEE</p>	<ul style="list-style-type: none"> ▶ Be recycled in a battery recycling facility which recovers the metal value from the batteries and properly handles hazardous materials, including potentially corrosive & explosive constituents, or ▶ If no recycling markets or options are available, including legal exports, batteries may be disposed of in legally permitted hazardous waste disposal facilities.
<p>4. Beryllium-containing components defined as HEE</p>	<ul style="list-style-type: none"> ▶ Never be Processed in incinerators of any kind, ▶ Be sent to integrated smelters which agree to accept beryllium-containing components & are equipped to responsibly Process and capture beryllium, or ▶ Be sent to hazardous waste landfills licensed & permitted to manage beryllium
<p>5. Cathode ray tubes (CRTs) (with or without vacuum) & CRT and other leaded display glass that is <u>uncleaned</u> (in any form), that contain lead or Phosphors or silica dust</p>	<ul style="list-style-type: none"> ▶ ALWAYS (when choosing glass processing options) Only be allowed by the Organization in glass processing facilities (including downstream processors) that: <ul style="list-style-type: none"> ▶ Are operational, i.e. actively processing glass/materials, and ▶ Only store them (prior to treatment or disposal) for a maximum of two years (if allowed by law) from the date received by the company at any location, regardless of longer time periods that governments may allow, and ▶ PREFERRED OPTIONS Be processed in any of the following types of facilities: <ul style="list-style-type: none"> ▶ A facility which thoroughly cleans the glass of particulates, and manages the resulting cleaned glass and processing residuals according to applicable requirements in this standard, ▶ A lead smelter, integrated copper smelter, or other facility using technology that recovers lead and cadmium; ▶ CONDITIONALLY ALLOWABLE OPTIONS Be processed in any of the following types of facilities: <ul style="list-style-type: none"> ▶ Lined, leachate controlled, and monitored solid waste landfills (unless prohibited by law or facility), if the glass/materials are first stabilized with a pre-treatment method in accordance with applicable laws and, as a result, pass the TCLP and thresholds found in definition of Hazardous Electronic Equipment; and ▶ Lined, leachate controlled and monitored hazardous waste landfill, unless forbidden by law.

¹³ These batteries may not contain lead, mercury, cadmium, lithium, flammable organic solvents, or unknown contents



<p>6. <u>Cleaned</u> display glass in any form containing lead, including:</p> <ul style="list-style-type: none"> ▶ CRT glass, with or without cleaned frit, and ▶ Some flat panel display glass, e.g. leaded plasma glass 	<ul style="list-style-type: none"> ▶ ALWAYS (when choosing glass processing options) Only be allowed by the Organization in glass processing facilities (including downstream processors) that: <ul style="list-style-type: none"> ▶ Are operational, i.e. actively processing glass/materials, and ▶ Only store them (prior to treatment or disposal) for a maximum of two years (if allowed by law) from the date received by the company at any location, regardless of longer time periods that governments may allow, and ▶ PREFERRED OPTIONS Be processed in any of the following types of facilities: <ul style="list-style-type: none"> ▶ Facilities which utilize cleaned, leaded (or mixed) glass and/or frit in manufacturing new products that will not leach metals (including barium) during their useful life, if prior to this: <ul style="list-style-type: none"> ▶ The glass has been thoroughly cleaned of Phosphors, coatings, fines, and particulates; and ▶ The Organization meets all requirements in 4.4.6.6 e); ▶ A lead smelter, integrated copper smelter, or other facility using technology that recovers lead, and ▶ Lined, leachate controlled and monitored hazardous waste landfills ▶ CONDITIONALLY ALLOWABLE OPTION Be processed in a lined, leachate controlled, and monitored solid waste disposal facility (unless prohibited by law or facility), if the glass has first been stabilized with a pre-treatment method in accordance with applicable laws and, as a result, passes the TCLP and thresholds found in definition of Hazardous Electronic Equipment (HEE).
<p>7. CRT glass that is <u>non-leaded</u> & thoroughly cleaned of Phosphors, coatings, frits, and fines</p>	<p>NOTE: Cleaned, non-leaded CRT glass is exempt from the definition of HEE, and therefore HEW, and does not have restrictions for Final Disposition.</p>



<p>8. CRT Processing residues and CRT residues, including:</p> <ul style="list-style-type: none"> ▶ CRT Phosphors, ▶ Coatings, ▶ Frits, ▶ Fines, and ▶ Waste streams contaminated with them 	<ul style="list-style-type: none"> ▶ ALWAYS (when choosing glass processing options) Only be allowed by the Organization in glass processing facilities (including downstream processors) that: <ul style="list-style-type: none"> ▶ Are operational, i.e. actively processing glass/materials, and ▶ Only store them (prior to treatment or disposal) for a maximum of two years (if allowed by law) from the date received by the company at any location, regardless of longer time periods that governments may allow ▶ PREFERRED OPTIONS Be Processed in one or more of the following types of facilities that have been notified and have consented in advance in writing to accept these materials: <ul style="list-style-type: none"> ▶ Facility that reclaims rare earth & critical metals (e.g. in Phosphors); ▶ Primary or secondary smelter that recovers lead and cadmium, and ▶ Lined, leachate-controlled, and monitored solid waste landfill, <u>only if</u> residues have first been stabilized with pre-treatment in accordance with applicable laws and pass TCLP & thresholds found in definition of Hazardous Electronic Equipment (HEE); ▶ Lined, leachate-controlled & monitored hazardous waste landfill ▶ CONDITIONALLY ALLOWABLE OPTION If Phosphors cannot be recycled, and if allowed by law, store them in safe, monitored, retrievable hazardous waste storage for future Recycling, e.g. of critical metals, if the facility has been notified and has consented in advance in writing to provide this service ▶ NEVER <ul style="list-style-type: none"> ▶ Never processed in incinerators of any kind
<p>9. Glycol-based coolants</p>	<ul style="list-style-type: none"> ▶ Be recycled (preferably) in a facility which decontaminates and restores coolant properties, or ▶ Be finally disposed of with treatment as a specially controlled liquid waste.
<p>10. Inks and toners, including liquid, pasty, and powder forms</p>	<ul style="list-style-type: none"> ▶ Managed in facilities that prevent explosions and respiratory hazards according to the following hierarchy, in order of preference: <ol style="list-style-type: none"> 1. Reuse cartridges by refurbishing or remanufacturing them, 2. Recycle emptied and cleaned cartridges in plastics recovery facilities, and recover carbon black for use in manufacturing, if possible, 3. Remove inks & toners, dispose of color inks & toners in hazardous waste landfills, and black inks & toners in solid or hazardous waste landfills, 4. Dispose of entire units including inks and toners in hazardous waste landfills or incinerators, and/or 5. Dispose of ink and toner cartridges and containers in a solid waste landfill only if the landfill has been notified and consented in writing in advance to accept ink and toner cartridges and containers as profiled & documented.



<p>11. Mercury and mercury-containing devices</p>	<ul style="list-style-type: none"> ▶ Never be Processed in incinerators of any kind, ▶ Not be 'recovered' in metals smelters, including smelters that recover mercury in the form of calomel and/or utilize mercury capture systems not designed for full mercury recovery from waste materials or secondary sources, and ▶ Preferably be permanently retired (before or after mercury retort operations) in a monitored, secure, and retrievable long term mercury storage facility and not recovered for reuse, or ▶ Be Processed at mercury retort facilities until or unless such long term mercury storage is available, in a facility that achieves a minimum of 99.99% mercury capture and recovery.
<p>12. Plastics & resins with Halogenated Materials, including:</p> <ul style="list-style-type: none"> ▶ Plastics that are baled, shredded, or whole, with or without metal contamination, ▶ Cleaned ink and toner cartridges with such plastics 	<ul style="list-style-type: none"> ▶ Not melted or burned in open fires, ▶ Preferable be recycled in plastics recovery facilities which separate and recover reusable plastics as long as, prior to shipment, the Organization obtains current valid operating and environmental licenses & permits to Process the specific plastics/resins. The unrecyclable plastics, waste materials, and residues shall be Processed via one of the plastic disposal Processes set forth immediately below, ▶ Processed in a smelter which continuously monitors, captures, and restricts emissions, including dioxins from flue gas stacks, ▶ Disposed of in a lined, leachate controlled solid or hazardous waste landfill.
<p>13. Polychlorinated biphenyl-containing components with PCB concentrations above 50 ppm or quantity unknown</p>	<ul style="list-style-type: none"> ▶ Never be opened up, recycled, or shredded, except by PCB processors that meet qualifications defined in remaining requirements in this section, and ▶ Only be dismantled & Processed by a processor that is trained and compliant with both: <ul style="list-style-type: none"> ▶ Basel Convention & Stockholm Convention guidelines and obligations, and ▶ Additional applicable national laws.
<p>14. Printed circuit boards, or components or materials (e.g. shredded fractions) which contain lead solders, Halogenated Materials, or fail threshold levels in definition of HEE</p>	<ul style="list-style-type: none"> ▶ Be pre-processed (e.g. shred the boards and refine/alloy metals in preparation for End Processors), if needed, in facilities which monitor and prevent releases of hazards, such as toxic dusts and stack emissions; and ▶ Be Processed by End Processors that are either: <ul style="list-style-type: none"> ▶ Pyrometallurgical facilities, such as integrated copper smelters, that monitor and restrict fumes and emissions, including continuous dioxin monitoring from flue gas stacks, and/or ▶ Hydrometallurgical facilities that control and manage fumes, and all hazardous residues to prevent releases to the environment and/or exposures.
<p>15. Radioactive wastes</p>	<ul style="list-style-type: none"> ▶ Be transferred to a facility that meets international standards¹⁴ for storage or disposal of radioactive wastes.

¹⁴ Notably the instruments of the International Atomic Energy Agency (IAEA), including the Convention on Nuclear Safety, the Codes of Conduct, and the International Safety Standards.



<p>16. Residuals from Processing, pollution controls, and housekeeping, such as bag-house dusts, filter residues, slags, and sweeps</p>	<ul style="list-style-type: none"> ▶ Shall be managed as hazardous waste unless the Organization can regularly demonstrate that a specific type of residual: <ul style="list-style-type: none"> ▶ Falls below the thresholds found in definition of HEE, and ▶ Is not considered a hazardous waste by regulation, and/or ▶ If allowed by law: <ul style="list-style-type: none"> ▶ Residuals which contain identifiable fractions of metals or other materials, e.g. sweeps from shredding or manual dismantling areas, may be reprocessed within the Organization’s Processing systems, and/or ▶ Residuals which contain high enough levels of precious metals or other materials to make them recyclable in either pyro- or hydrometallurgical facilities may be Processed according to requirements for printed circuit boards above.
<p>17. Selenium-containing components¹⁵</p>	<ul style="list-style-type: none"> ▶ Shall be transferred to a facility licensed and permitted to Recycle or dispose of selenium.
<p>18. Slag or other residuals from processing HEWs</p>	<ul style="list-style-type: none"> ▶ Shall be managed as HEWs according to applicable requirements of this Standard, including 4.4.6.7 (Export) and 4.4.6.6 (Final Disposition), until they reach Final Disposition, if they fail the thresholds found in the definition of Hazardous Electronic Equipment, as determined by a TCLP.

f) Table 3, Row 6 [DELETE EARLIER Q&A SANCTIONED INTERPRETATION; REPLACED WITH LANGUAGE ABOVE IN 4.4.6.6. f)]

4.4.8 Insurance [NEW STANDARDS LANGUAGE. THIS SECTION REPLACES ORIGINAL INSURANCE SECTION, WITH NEW FINAL PARAGRAPH]

An Organization shall obtain and maintain liability insurance¹⁶ adequate to cover the potential risks and liabilities for both its physical site(s) and operations, per occurrence and in the aggregate, as follows:

- a) Levels of insurance shall be commensurate with the nature and risks of the Organization’s operations,
- b) The insurance shall cover liability for data privacy breaches, contractual liability, site pollution, property damage, environmental pollution, and occupational health and safety impacts (e.g. hazardous exposures and releases, bodily injury, and accidents) and other emergencies, and
- c) The Organization shall retain the appropriate insurance to indemnify affected parties, if indemnification is offered and allowed by law.

The Organization should obtain written professional risk management advice and quotes from one or more qualified¹⁷ insurance professionals/underwriters regarding appropriate insurance for both its physical site(s) and operations. If actual insurance coverage is significantly different from the professional advice and quote(s), the Organization shall demonstrate how and why.

¹⁵ e.g. xerographic photocopier drums, older printer drums or analog copiers, some solar panels & other photovoltaic cells

¹⁶ Or its equivalent in countries which do not allow insurance.

¹⁷ Qualifications must include familiarity with the risks associated with the electronics recycling/refurbishment industry, as applicable, as well as familiarity with insurance or financial assurance laws and best practices.



4.5.1.4 Report to e-Stewards database

Prior to initial certification, and by January 31st of every subsequent year, the Organization shall provide the following data for each calendar year¹⁸ to the e-Stewards program administrator in English language **using the form provided and submitted at <http://e-stewards.org/learn-more/for-recyclers/forms/e-stewards-recyclers-annual-database-report/>** regarding all Electronic Equipment entering their facility(s) and/or under their Control (including associated Ancillary Sites)...

APPENDIX A: REQUIREMENTS FOR ALL e-STEWARDS ORGANIZATIONS

A.4.4.6.5. Accountability for downstream recycling

c) 1.

i. [NEW FOOTNOTE AT END OF PARAGRAPH]

Evaluate, perform on-site audits, and approve each IDP, including:

At least Annually, and whenever changes in vendors and/or Brokers are made, determine that each IDP has the in-house technical capability, operational capacity (including controls), and willingness to further Process and/or dispose of HEWs in a manner that effectively meets the Organization's obligations for HEWs and in accordance with the IDP's legal requirements, as well as 4.2 b), 4.3.2.1 (Legal Exports and Imports), the Organization's plan for materials (4.3.4), 4.4.6.2 (Reuse) and 4.4.6.3 (Data Security) if applicable, 4.4.6.4 (Management of EE), 4.4.6.5 (Downstream Accountability), 4.4.6.6 (Final Disposition), and 4.4.6.7 (Export & Import Controls),¹⁹

ii. [NEW FOOTNOTE IN FIRST LINE]

Ensure that each IDP maintains and provides to the Organization²⁰ ongoing records of the IDP receiving and Processing the Organization's HEWs, as well as random sampling of downstream Shipping Records, including acknowledgements of receipt and Processing (see A.4.4.6.5 d) 2)

iii. [NEW STANDARDS LANGUAGE INSERTED]

Create and enforce written agreements with each IDP, unless it is a certified e-Stewards Organization, and review at least every 3 years to restrict and control the Organization's HEWs according to requirements in section 4.4.6.5. This agreement shall include a requirement for each IDP to immediately (within fifteen business days) notify the Organization if any of the IDP's Downstream Processors or Brokers change.

iv. [NEW STANDARDS LANGUAGE INSERTED]

¹⁸ January 1st through December 31st. For the initial certification only, the Organization may provide less than a full year of data. In this case, data must be provided from the period of time between when the Organization contracted for initial certification and when they accomplished their Stage One audit, and must include at least three consecutive months of data.

¹⁹ When using another certified e-Stewards Organization as an IDP, the Organization does not need to ensure conformity to the following requirements in this paragraph: "...and willingness to further Process and/or dispose of HEWs in a manner that effectively meets the Organization's obligations for HEWs and in accordance with the IDP's legal requirements, as well as 4.2 b), 4.3.2.1 (Legal Exports and Imports), the Organization's plan for materials (4.3.4), 4.4.6.2 (Reuse) and 4.4.6.3 (Data Security) if applicable, 4.4.6.4 (Management of EE), 4.4.6.5 (Downstream Accountability), 4.4.6.6 (Final Disposition), and 4.4.6.7 (Export & Import Controls)".

²⁰ When using another certified e-Stewards Organization as an IDP, the Organization does not need to obtain ongoing records of receiving and Processing HEWs. However, the Organization shall ensure they retain the right to such records from the downstream certified e-Stewards Organization, should they or their customers require them.



Annually perform Due Diligence, except when using a certified e-Stewards Organization, and determine, via objective evidence, that all IDPs have valid and current business licenses, process and facility permits, control permits, and import permits, as applicable, to properly manage the Organization's materials, and that they have adequate insurance and site closure plans, appropriate to the scope and scale of their operations and potential remediation costs. Verify the accuracy and adequacy of information obtained, and determine if each IDP has had regulatory violations, fines, and/or related enforcement actions in the past 5 years,

v. [NEW STANDARDS LANGUAGE INSERTED]

Except when using a certified e-Stewards Organization, verify with documented evidence that each IDP either:

- ▶ Has a current and accredited certified environmental health and safety management system (EHSMS), or
- ▶ Fully implements, Annually reviews, and updates as needed a documented management system for: identifying and complying with legal requirements; identifying and effectively responding to environmental, health, and safety risks; and continually evaluating and improving that system and their operations accordingly,

Ensure this management system effectively implements environmental, health & safety procedures, controls, and monitoring to prevent exposure and releases to toxics such as lead, mercury, and cadmium.

d) [A.4.4.6.5 d) REQUIREMENTS DO NOT APPLY TO AN e-STEWARDS DOWNSTREAM PROCESSOR BEYOND IDP IF THE ORGANIZATION HAS EVIDENCE OF THE DOWNSTREAM FACILITY'S VALID e-STEWARDS CERTIFICATION]

APPENDIX B: ADMINISTRATIVE REQUIREMENTS FOR e-STEWARDS ORGANIZATIONS

f) Significant Changes Following Certification [THIS SECTION REPLACES ORIGINAL SECTION f)]

The Organization shall make their CB aware of any significant changes to ownership, management, facilities, operations, Ancillary Sites, number of workers, Processing methods, emergencies, legal compliance, citations or fines from governmental bodies, or other significant changes that may impact ongoing conformance with the Standard, within 14 business days of the change(s) or less if required by their CB. The term 'significant change' includes, but is not limited to, any changes that could materially affect the Organization's detrimental impacts on human health or the environment, commitments to customers, or its ability to remain in conformity with the e-Stewards Standard. The Organization shall permit the CB to conduct an evaluation of the reported changes and their effects on conformance, including special on-site surveillance audits, as necessary.

h) Oversight by e-Stewards program administrator [NEW ADDITIONAL LANGUAGE FOR LETTER h)]

Performance Verification (PV) procedure: Certified e-Stewards Recyclers are required to add a documented procedure to their management systems (by July 1, 2015 for already certified



Organizations) to indicate responsibilities and procedures for receiving unannounced inspections from designated representatives of the e-Stewards program administrator ('inspectors') to verify ongoing conformance with the Standard. Important elements that shall be addressed in the required procedure are as follows:

- Management acknowledgment of the Performance Verification program and commitment to cooperate in all regards;
- Assignment of a named Management Representative and a Deputy Management Representative, who will be the primary contact for the inspectors when they arrive on site. If neither named official is available on the day of the inspection, then the senior site manager will be the contact for the inspectors;
- Acknowledgment and acceptance that there may be disruptions in production on the day of any such inspection;
- Confirmation that the Organization will permit the inspection to begin within 15 minutes of the arrival of the inspectors;
- Acknowledgement that during the inspection, it is likely that in-process and finished materials will be sampled and that any operations or materials may be required to be unloaded, unpacked, inspected, re-tested or otherwise verified to meet the e-Stewards Standard and management system requirements in all regards;
- Organization will permit access to the inspectors to all areas and structures under the scope of the e-Stewards management system, and permit complete inspection. This extends to any Ancillary Sites of the certified location; and
- All documents, records, past audit reports, etc. shall be made available to inspectors without delay, upon request of the inspectors.